

Postdoctoral position in Quantitative Systems Biology

Gregor Neuert, Ph.D.

Assistant Professor

Laboratory for Quantitative Systems Biology

Department of Molecular Physiology and Biophysics and

Program in Systems Biology

School of Medicine

Vanderbilt University

Nashville, TN



VANDERBILT
UNIVERSITY

Email: gregor.neuert@vanderbilt.edu

Postdoctoral position: To study and predict dynamic spatial-temporal processes in signal transduction and gene regulation by quantifying individual cells with single-molecule resolution.

A current molecular medicine topic of interest is how cells respond dynamically to changes in their environment utilizing their cellular gene, RNA and protein networks. We aim to approach this question by investigating endogenous, signal transduction and transcriptional regulatory networks of coding and non-coding RNA in yeast. Yeast is an ideal model organism for studying these questions because it can be easily manipulated genetically and many biological principles are conserved in humans. We aim to investigate the architecture and functioning of these networks by measuring the dynamics of protein and RNA levels in single cells. Our research methods include a combination of single-cell techniques such as flow cytometry, live cell time-lapse microscopy, fluorescent in-situ hybridization with single-molecule resolution at the RNA level (single-molecule RNA-FISH) in cells and tissue samples as well as single-molecule-based modeling. The main advantage to quantify single cells is to distinguish between different regulatory mechanisms, which cannot be observed in population-based experiments. Since our approach is general, it can lead to similar quantitative understanding of many genes, pathways or organisms ranging from yeast to human.

We are looking for motivated postdoctoral candidates. If your background is in biology or medicine, no quantitative knowledge is required. If your background is in chemistry, computer science, engineering, or physics, no biology knowledge is required.

Please find me here at the **q-bio 2012 conference** or send an email with a CV, a short description why you are interested in joining the lab and addresses of three references to gregor.neuert@vanderbilt.edu.